

*W.E.  
As of Friday, we could  
not find indication of any  
transmission to that office!  
Did it go through?*

*Wef* 61-1574

February 7, 1961

Commander USAF, Hq.  
AFM-PP-W5-3  
C-5/H Room 4E-274, Pentagon  
Washington 25, D.C.

Attention: Major Leslie J. Greenwood

Dear Sir:

Re: SAC Requirement for STOL Aircraft

Recently, we had opportunity to discuss briefly with members of the Transportation Panel certain characteristics of the Bell UH-1B bearing on this airplane's capabilities to fulfill an existing SAC Requirement. Out of that conference, we ascertained that two essential facts had not been communicated adequately to USAF Headquarters.

First, as regards equipment details, USAF Headquarters evidently had no information later than the ARMC Evaluation Report, which -- while not published until January 1960 -- was in fact based on 1958 commercial versions. The particular aircraft used, though procured in January 1959, were 1958 production items in standard civilian configuration without that heavy-duty equipment, night lighting and other details even then being incorporated in those UH-1B's being used in actual field service. The ARMC Report goes into great detail on 'inadequacies', many of which reflect only the decision of the ARMC Procurement Office to omit on the ARMC evaluation airplanes much of the equipment generally included for other military operations.

In addition, since 1958, substantial modifications and improvements have been developed at government expense to increase the UH-1B's effectiveness on military-type missions. Among the substantial modifications now available for military application, for example, is a four-inch wider cabin with extra doors permitting the level loading of two litters and with seating capacity for six. Also available is an internal opening door and other modifications to facilitate low altitude precision parachute drops. The UH-1B is now operated at a 3920 gross load, providing a total useful load of 1900 lbs.

The office which has been using UH-1B's on sensitive operations is, we understand, now preparing documentation and reports on its performance, service history and government-financed development. These data are being transmitted to General E. H. Holloway, Director of Operational Requirements. Although the full information desired may not automatically be incorporated in the first reports delivered to General Holloway's office, these communications will establish a channel for any additional information desired.

We understand that the existence of these improved capabilities of the UH-1B was known and taken into account at SAC's Headquarters when that office established Requirements consistent with the best capabilities known to be available.

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Second, as regards performance requirements, the recent conferences at USAF Headquarters indicated that certain of the essentials needed to service satisfactorily the SAC missile bases have been lost sight of in the debates as to whether "STOL" is really necessary for SAC's purposes. There has been a great preoccupation with runway length as though that were the sole determinant of the need for a STOL airplane. However, STOL capabilities involve considerably more than mere ability to land and take-off short over barriers.

If short-field landing and take-off ability were the only essential characteristic differentiating a true STOL airplane, then, with moderate additions to runway length, lower-cost naked-wing conventional airplanes might often fulfill the function with greater net economy. The report that General Holloway's office is receiving, however, together with a more careful check on the results of the field tests by SAC personnel at Warren Air Force Base, will reveal conclusively that considerably more than the runway length factor is involved.

The extensive flight tests at Warren Air Force Base by SAC pilots in an L-28A demonstrated that certain other characteristics of this STOL airplane were equally as important as its short-field ability in meeting SAC's mission reliability requirements. In order for the L-28A to be able to operate on short one-way strips, it has been necessary to develop certain control-and-stability as well as ground handling characteristics which also enable this airplane to continue operation under turbulence and crosswind conditions which ground other light airplanes, regardless of the runway length.

Thus, on a number of occasions, while SAC pilots were performing transition training flights with the L-28A on the one-way strip which is several thousand feet long at Warren Air Force Base, wind conditions grounded all other light aircraft, including the L-20's which were then performing missile base supply work. We were advised that the L-28A was several times pulled off its test program in order to substitute on missile base missions when the other aircraft were grounded.

Thus, the recent discussion as to whether or not a small increase in runway length might eliminate SAC's need for STOL aircraft is overlooking one of the most essential factors in their Requirement. As you know, STOL aircraft are now being used extensively by the Russian, German and Swiss military and are under procurement by the British and Swedish. STOL operations in every part of the globe (including those by U. S. military officers now being summarized for General Holloway's office) have demonstrated the importance of two design features not incorporated in older-style conventional airplanes. These are:

First is the necessity for some form of boundary-layer control. The device which the L-28A uses was also copied from the British by the Russians -- namely, the Handley-Paige leading-edge slat. The Germans employ the somewhat simpler, though less effective, fixed-slat in the wing. In every case, however, where efforts have been made to substitute the yet cheaper unprotected conventional naked-wing on light aircraft for restricted area operations, undue vulnerability to turbulence has resulted. We therefore suggest that your office check back through the communications channel in General Holloway's office to verify that this boundary-layer control characteristic has been found essential to accomplish mission reliability under a wide range of weather conditions on one-way strips, independent of length.

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Second, and equally essential for any such fixed-wing airplane is some sort of supplement to the lateral control system so that an adequate rate-of-roll can be maintained for maneuvering and to correct for gust upsets at those lower speeds where conventional ailerons become inadequate. You will find, both from the Warren Air Force Base tests and from the other U. S. service experience referred to above, that such a supplemental addition to the conventional aileron system is essential. (It is on this point of lateral control that the L-28A has exceeded the European STOL aircraft -- winning the 1960 B.A.F.A.C. competition at Shoreham, England.)

Because the USAF has to date procured an insufficient number and variety of STOL aircraft to have established meaningful control-and-stability standards, there is probably no substitute but to require a history of satisfactory service experience with whatever control system may be provided. Again, the records available on the L-28A will document its abilities on that point.

We will appreciate your attention to the points submitted in this letter and your cooperation in distributing this information to such other officers at USAF Headquarters and in Air Materiel Command as may properly be concerned.

Sincerely yours,

HELIC AIRCRAFT CORPORATION

LLB:RCG

Lynn L. Bollinger  
President

#2A, 150 E. 46th St.  
Aeronautical Research Foundation  
Soldiers Field  
Boston 63, Massachusetts

AIR MAIL

W300000



Central Intelligence Agency  
2430 E. St. N.W.  
Washington 25, D.C.

AIR MAIL

